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Suppliers' Information Note

For The BT Network

BT MegaStream 1, BT MegaStream 2 and BT MegaStream 8

Service Description

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1. Introduction

This Suppliers' Information Note (SIN) describes the BT MegaStream 1, BT MegaStream 2 and BT MegaStream 8 services and provides technical information for terminal equipment manufacturers, suppliers and developers.

Note: All MegaStream services described in this SIN have been withdrawn from new supply.

All MegaStream products were withdrawn from service completely at the end of November 2025. Reasonable endeavours maintenance support will continue to be provided on existing installations contracted under Private Circuits Overrun Service (PCOS) terms and conditions, and where technically possible and commercially realistic to do so until circuits are either ceased or withdrawn from the PCOS service limited extension completely at the end of July 2026.

2. Service Outline

BT MegaStream 1, BT MegaStream 2 and BT MegaStream 8 are inland point-to-point leased high-speed digital services, operating at 1024 kbit/s, 2048 kbit/s and 8448 kbit/s respectively. The 1024 kbit/s and 2048 kbit/s services are presented to the customer via both the ITU-T G.703[1] (75 ohm and 120 ohm) interface and ITU-T X.21[8] interface. The 8448 kbit/s interface is presented to the customer via an ITU-T Recommendation G.703[1] (75 ohm) interface.

The 120 ohm interface option provides BT's Unstructured 2 Mbit/s Open Network Provision (ONP) Service.

BT MegaStream private circuits provide permanent connections between customer premises throughout the UK. The services are suitable for meeting a variety of networking requirements such as linking PBXs, host computers, word processors and terminals at a number of different sites, regardless of distance.

3. Service Availability

The 1024 kbit/s NTE is equipped with both X.21[8] and G.703[1] interfaces. Aggregate interface (Multiple Circuit Delivery) is a product feature of BT MegaStream 1.

As reflected in the BT Price List 26.9.2001 - **MegaStream 8 is no longer available for new supply.**

All MegaStream products were withdrawn from service completely at the end of November 2025. Reasonable endeavours maintenance support will continue to be provided on existing installations contracted under Private Circuits Overrun Service (PCOS) terms and conditions, and where technically possible and commercially realistic to do so until circuits are either ceased or withdrawn from the PCOS service limited extension completely at the end of July 2026.

As reflected in the BT Price List 03.12.2012 – **MegaStream 1 is no longer available for new supply.**

All MegaStream products were withdrawn from service completely at the end of November 2025. Reasonable endeavours maintenance support will continue to be provided on existing installations contracted under Private Circuits Overrun Service (PCOS) terms and conditions, and where technically possible and commercially realistic to do so until circuits are either ceased or withdrawn from the PCOS service limited extension completely at the end of July 2026.

As reflected in the BT Price List 28.04.2021 – **MegaStream 2 is no longer available for new supply.**

All MegaStream products were withdrawn from service completely at the end of November 2025. Reasonable endeavours maintenance support will continue to be provided on existing installations contracted under Private Circuits Overrun Service (PCOS) terms and conditions, and where technically possible and commercially realistic to do so until circuits are either ceased or withdrawn from the PCOS service limited extension completely at the end of July 2026.

The MegaStream 2048 kbit/s and 8448 kbit/s services support the G.703[1] interface.

BT launched the 2048kbit/s X.21[8] interface for new service supply in May 1998. This interface will be managed by the network and connected to existing alarm systems etc. Where the 2048 kbit/s X.21[8] resource is not available, BT will continue to supply the 2048 kbit/s G.703[1] interface and service.

4. Technical Specification

4.1 Implementing the G.703 Physical Presentation

4.1.1 75 ohm Unbalanced Interface

The physical presentation of the services is via a pair of BNC unbalanced 75 Ohm sockets, one for each direction of transmission. The sockets conform to the general requirements of IEC 169-8[2] with the mating dimensions specified in annex B of BS ISO/IEC 10173 : 1991[7].

4.1.2 120 ohm Balanced Interface

The BT MegaStream 1 and MegaStream 2 (G.703, 120 Ohm) service conforms to European Telecommunication Standard (ETS) 300 418[4] supporting the following options:

- D2048U offering (unstructured) – MX2 only
- D2048S offering (structured) – MX 1 only (Note: MegaStream 1 is no longer available for new supply.
- The connection offered by BT is by means of a socket that conforms to BS EN 60603-7 : 1993[5] (RJ45 type). The pin out/contact assignment is given in the standard BS ISO/IEC 10173 : 1991[7].

4.2 Implementing the G.703 Electrical Presentation

4.2.1 75 ohm Unbalanced Interface

The electrical presentation conforms to ITU-T Recommendation G.703 [1], Section 6 for BT MegaStream 2 and MegaStream 1 using the coaxial option, and Section 7 for BT MegaStream 8. The line code is High Density Bipolar of order 3 (HDB3) as defined in ITU-T Recommendation G.703[1] Annex A. The BT MegaStream 1 is a structured pipe where the interface utilises channels 1-16 only. The BT MegaStream 2 service is unstructured; i.e. there are no constraints on the use or format of the bit pattern/frame structure other than those of the line code.

4.2.2 120 ohm Balanced Interface

The BT MegaStream1 and MegaStream 2 (G.703, 120 Ohm) service conforms to European Telecommunication Standard (ETS) 300 247[6].

FRAME STRUCTURE - The frame structure offered over the G.703 interface for the MX1 service complies with G.704[3] Section 5.

4.3 Implementing the X.21 Interface

4.3.1 Physical

The BT MegaStream 2 service offers X.21[8] access via a 15-way D-type connector mounted on an NTE located at the customer's premises. The attachment to the NTE is via an interface (DTE-NTE) conforming to ITU-T Recommendation X.21[8] that facilitates full duplex transmission of data at the 2048 kbit/s rate.

For the MegaStream 1 (no longer available for new supply) the attachment to the NTE is via an interface (DTE-NTE) conforming to ITU-T Recommendation X.21[8] which facilitates full duplex transmission of data at the Nx64 kbit/s rate where N=5 - 16 (320 kbit/s- 1024 kbit/s).

The customer's terminal equipment (DTE) is connected to the NTE irrespective of data rate by means of a connecting cord with 15 way "D" type connectors conforming to BS ISO 4903[11].

4.3.2 Electrical (The NTE/DTE Interface)

The interchange circuits used are shown in Table 1:

Table 1 - Interchange Circuits

CCITT_CIRCUIT DESIGNATION	DIRECTION OF SIGNALLING	CIRCUIT DESCRIPTION	PIN A	PIN B
G	--------	Ground (common Return)	8	-
T	DTE ->- DCE (NTE)	Transmitted Data	2	9
R	DTE -<- DCE (NTE)	Received Data	4	11
C	DTE ->- DCE (NTE)	Control	3	10
I	DTE -<- DCE (NTE)	Indicate	5	12
S	DTE -<- DCE (NTE)	Signal Element Timing	6	13
B	DTE -<- DCE (NTE)	Byte Timing	7	14

A brief description of the function of each interchange circuit is given below. A full description of these circuits can be found in ITU-T Recommendation X.24[9].

Circuit G: Signal ground.

Circuit T: Data signals at a rate of N x 64 (320 – 1024k) & 2048 kbit/s are transferred from the DTE to the NTE.

Circuit R: Data at the originating bit rate N x 64 (320 – 1024k) & 2048 kbit/s is extracted from the incoming 2048 kbit/s signal and transferred from the NTE to the DTE.

Circuit C: The state (ON or OFF) of interchange circuit C will not be extended through the network.

Circuit I: The state (ON or OFF) of the interchange circuit I will either be set to permanently ‘ON’ or will be controlled by local conditions. This circuit "I" will not be extended end-to-end.

Circuit S: The NTE recovers a N x 64 (320 – 1024k) & 2048 kbit/s clock which is extended to the DTE to provide signal element timing across the interface at all times.

Circuit B: This circuit is not implemented.

The electrical characteristics (at all data rates) of the interface are compatible with ITU-T Recommendation X.27 (V.ll)[10] with cable termination in the load. This condition must also apply to the DTE. The Electrical Industries Association equivalent is RS 449 (RS 422A).

4.4 Network Terminating Equipment (NTE) Power Requirements

Various types of NTE maybe installed, but all require a -50 V d.c. Power feed. Power consumption varies dependent on type of NTE, between 5 Watts and 20 Watts. The -50 V

d.c. supply can be provided by BT, or by the customer (see note below). A customer supplied a.c. mains power source will be required close to the installation to operate the BT -50 V d.c. power supply.

Where the NTE is powered by a customer provided -50 V d.c. supply, the NTE will be supplied with a connection lead, which will be presented as wires only. As power supplies can vary slightly in output voltage and characteristics, the NTE will function with customer provided power supplies, which conform to British Telecommunications Network Requirements (BTNR) 2511[3].

Note: Customer provided power supplies for connection to these services should conform to relevant safety standards.

5. Further Information Contact Point

Please contact either:

- Your Company's BT account manager.
- For personal customers, BT sales on 0800 800150 for product and service information, sales and rental enquiries.
- For business customers, BT sales on 0800 800152 for product and service information, sales and rental enquiries.

If you have enquiries relating to this document then please email us at:
sinet.helpdesk@bt.com

6. Abbreviations

BNC	Bayonet Neill Concelman - a bayonet-locking connector for coaxial cables
BS	British Standard
BTNR	British Telecommunications Network Requirements
DCE	Data Circuit Terminating Equipment
DTE	Data Terminating Equipment
ETS	European Telecommunication Standard
HDB3	High Density Bipolar of order 3
ISO	International Standards Organisation
ITU-T	International Telecommunication Union - Telecommunications standardisation section
NTE	Network Terminating Equipment
ONP	Open Network Provision
SIN	Suppliers' Information Note

7. References

[1]	ITU-T Recommendation G.703 - Physical/Electrical Characteristics of Hierarchical Digital Interfaces.
[2]	British Standard IEC 169-8 - Radio-frequency connectors - Part 8 : R.F. coaxial connectors with inner diameter of outer conductor 6.5 mm (0.256 in) with bayonet lock - Characteristic impedance 50 ohms (Type BNC)
[3]	ITU-T Recommendation G.704 - Synchronous Frame Structures used at 1544, 6312, 2048, 8488 and 44 736 kbit/s Hierarchical levels.
[4]	European Standard ETS 300 418 - 2048 kbit/s digital unstructured and structured leased lines (D2048U and D2048S); Network interface presentation.
[5]	British Standard EN 60603-7 - Connectors for frequencies below 3 MHz for use with printed boards - Part 7. Detail specification for connectors, 8-way, including fixed and free connectors with common mating features.
[6]	European Standard ETS 300 247 - Open Network Provision (ONP) technical requirements; 2048 kbit/s digital unstructured leased lines (D2048U) Connection characteristics.
[7]	British Standard ISO/IEC 10173 - Integrated Services Digital Network (ISDN) Primary Access Connector at Reference Points S and T
[8]	ITU-T Recommendation X.21 - Interface between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for Synchronous Operation on Public Data Networks.
[9]	ITU-T Recommendation X.24 - List of Definitions for Interchange Circuits between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) on Public Data Networks.
[10]	ITU-T Recommendation X.27 (V.11) - Electrical Characteristics for Balanced Double-Current Interchange Circuits for General use with Integrated Circuit Equipment in the Field of Data Communications.
[11]	British Standard ISO 4903 - 15 Pole DTE/DCE Interface Connector and Contact Number Assignments
[12]	BTNR 2511 - Interface of Telecommunications equipment - nominal 48 volt negative dc power supply.

8. History

Issue 1	February 1997
Issue 2	May 1998 Introduction of X.21 interface on MegaStream2
Issue 2.1	December 2000 Editorial changes & approval requirements now by reference to SIN 325.
Issue 3	February 2001 - addition of the MegaStream 1 Product
Issue 3.1	June 2003 – Addition of MegaStream 1 Aggregate option. Update to reflect policy of MegaStream 8 not available for new supply. Approval Requirements statement removed, information available via SINet Useful Contacts page.
Issue 3.2	April 2013 - Update to reflect policy of MegaStream 1 not available for new supply.
Issue 3.3	January 2016 – Minor editorial amendments. Change SINet site references from http://www.sinet.bt.com to http://www.btplc.com/sinet/
Issue 3.4	July 2020 - Notification of service withdrawal timeframes added. Change SINet site references from http://www.btplc.com/sinet/ to https://www.bt.com/about/sinet
Issue 3.5	Stop Sell New dates and contact details updated.
Issue 3.6	Confirmation of full service withdrawal date.
Issue 3.7	Minor editorial changes as MegaStream has a limited extension until end of July 2026

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